

CLAIMS:

1. A liquid crystal display panel, comprising:
- an array substrate on which a driving element for controlling a driving voltage and a display electrode to which a voltage is applied through the driving element are formed;
- a first polarization layer for polarizing the light passing through the array substrate;
- a liquid crystal layer having a liquid crystal material;
- a color filter substrate on which a color filter made of a color-material film is formed; and
- a second polarization layer for polarizing the light passing through the color filter substrate,
- wherein the array substrate, the first polarization layer, the liquid crystal layer, the color filter substrate, and the second polarization layer are successively superposed.
2. The liquid crystal display panel according to Claim 1, wherein a common electrode is formed on the array substrate and an electric field is generated in a direction parallel with the array substrate by applying a voltage between the display electrode and the common electrode.

3. The liquid crystal display panel according to Claim 1, wherein a common electrode is formed on the color filter substrate and an electric field is generated in the direction vertical to the array substrate by applying a voltage between the display electrode and the common electrode.
4. A liquid crystal display device, comprising:
- a liquid crystal display panel in which an array substrate and a color filter substrate are arranged to sandwich a liquid crystal layer; and
- a backlight unit for applying light to the liquid crystal display panel from the outside of the array substrate,
- wherein the light reflected from the array substrate of the liquid crystal display panel directly returns to the backlight unit without passing through other layers.
5. The liquid crystal display device according to Claim 4, wherein:
- a polarization layer is set between the array substrate and the color filter substrate of the liquid crystal display panel; and
- the light reflected from the array substrate returns to the backlight unit without passing through the polarization layer so as to improve the light-recycling efficiency of the backlight unit.
6. The liquid crystal display device according to Claim 5, wherein the brightness of the liquid crystal display is improved compared to the case of a liquid crystal display constituted so that the light reflected from the array

substrate returns to the backlight unit after passing through a polarization layer.

7. A liquid crystal display device, comprising:

a liquid crystal display panel in which an array substrate and a color filter substrate are arranged to sandwich a liquid crystal layer having a liquid crystal material and a reflection film is formed in an area on the array substrate corresponding to an area in the liquid crystal layer in which the liquid crystal material is oriented in a not-purposed direction when applying a voltage to the liquid crystal layer; and

a backlight unit for illuminating the liquid crystal display panel from the outside of the array substrate.

8. The liquid crystal display device according to Claim 7, wherein:

a display electrode and a wiring conductively connected to the display electrode are formed on the array substrate; and

the reflection film is formed on a gap between the display electrode and the wiring.

9. The liquid crystal display device according to Claim 7, wherein a polarization layer is formed between the array substrate and the color filter substrate of the liquid crystal display panel.

10. A liquid crystal display panel, comprising:

an array substrate on which a driving element for controlling a driving voltage and a display electrode to which a voltage is applied through the driving element are formed;

a liquid crystal layer filled with the liquid crystal material; and

a color filter substrate on which a color filter made of a color-material film is formed,

the array substrate, the liquid crystal layer, and the color filter substrate being successively superposed,

wherein a metal film is formed in an area of the array substrate corresponding to an area in which an electric field having a direction different from the original direction of an electric field for driving the liquid crystal material is generated.

11. A liquid crystal display device, comprising:

an array substrate provided with an insulating substrate, a thin film transistor formed on the insulating substrate, a polymer layer which covers the insulating substrate and in which polarization elements are dispersed, and a display electrode which is formed on the polymer layer and penetrates the polymer layer and a part of which conductively connects with the thin film transistor;

a color filter substrate set so as to face the array substrate by keeping a

predetermined gap with the array substrate; and

a liquid crystal layer located at the gap between the array substrate and the color filter substrate; and

a backlight unit for applying light to a liquid crystal display panel from the outside of the array substrate.

12. The liquid crystal display device according to Claim 11, wherein the thin film transistor is covered with the display electrode when horizontally viewed.

add
a4

09764621.041801